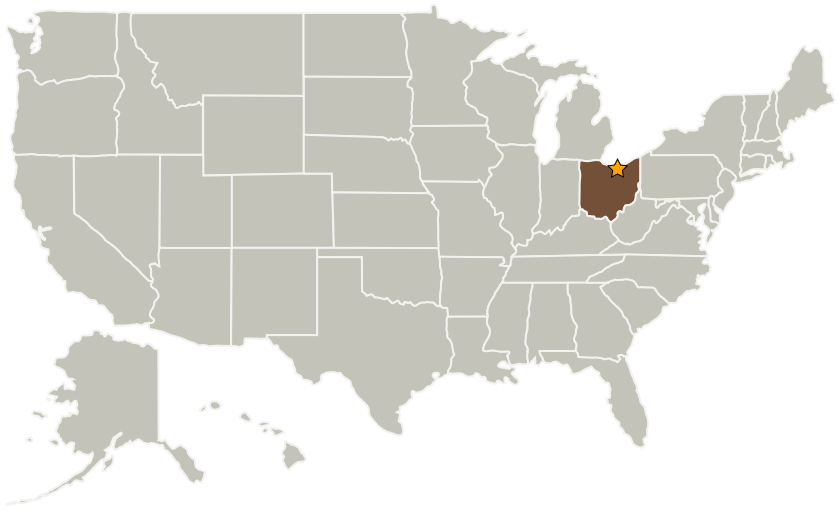
Physical Improvements in Exciter/Igniter Units, Phase I

Completed Technology Project (2007 - 2007)

Project Introduction

The proposed project consists of developing a prototype exciter/igniter unit that can operate to a subset of expected flight performance requirements. The main focus of this development effort will be the physical integration of a small, compact exciter with a "flight like" igniter or spark plug. This exciter/igniter prototype will represent the exciter/igniter units used to generate sparks that ignite fuels in engines and propulsion systems. The development of this prototype unit will follow a phased approach covering design, development, analysis, assembly, test and verification. This prototype will represent a "stand alone" integrated unit capable of providing ionizing voltage greater than 20 kV for a spark energy of 45 to 50 mJ at a rate of 200-300 sparks per second. The proposed prototype will integrate both the exciter electronics and an igniter (spark plug) to demonstrate "end-to-end" functionality. Additionally, the integrated unit will be as compact as possible. The implications of the proposed project are for space and weight savings in the overall development of green propulsion systems as applicable to research projects in Exploration Systems and specifically applicable to Topic X9 Propulsion and Propellant Storage.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Alphaport, Inc.	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Cleveland, Ohio

Primary U.S. Work Locations
Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.2 Electric Space Propulsion
    - TX01.2.1 Integrated Systems and Ancillary Technologies